Figure 1 A

Linker 1 -The linker describe in claims 5 and 9 (when n=3)

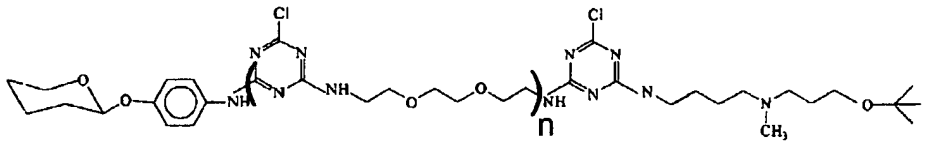



Figure 1 B

Linker 2 - a similar linker that was tested to compare preformance

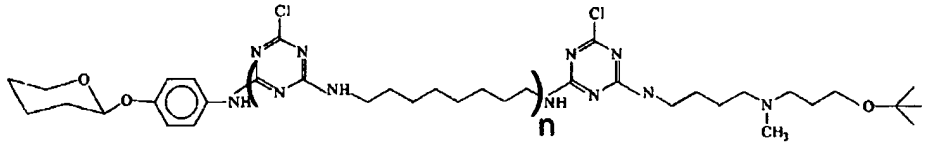



Figure 2

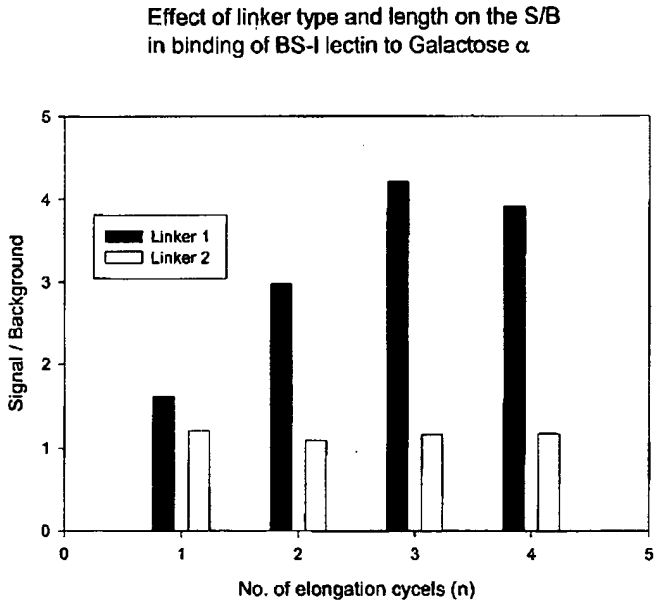


Figure 3 A

Linker 1- Effect length on the absolute signals and background in binding of BS-I lectin to Galactose α

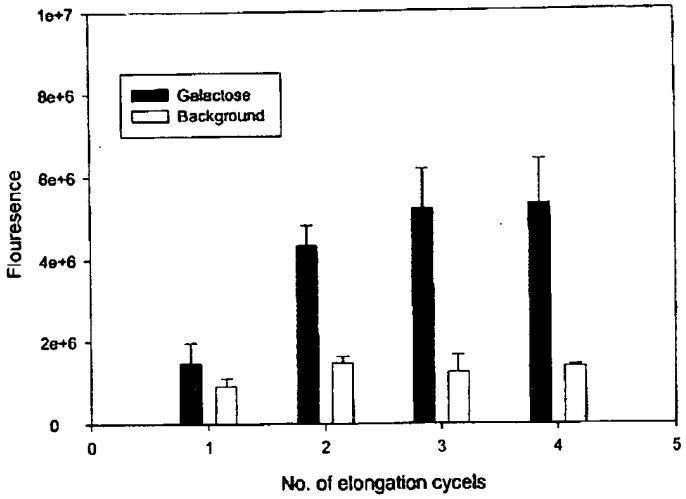



Figure 3 B

Linker 2- Effect length on the absolute signals and background in binding of BS-I lectin to Galactose α

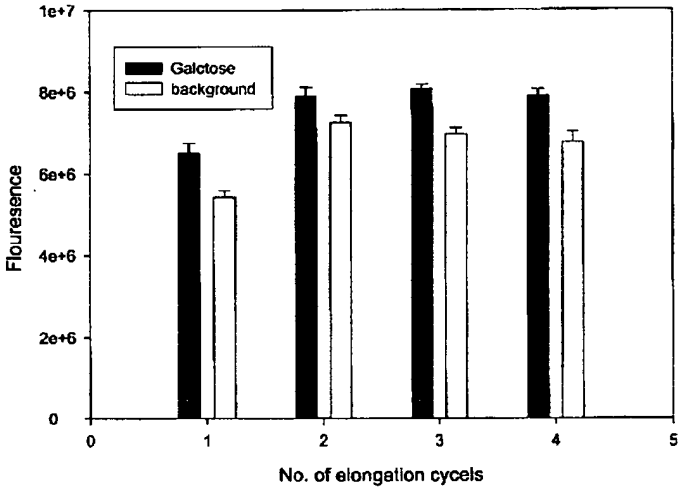


Figure 4

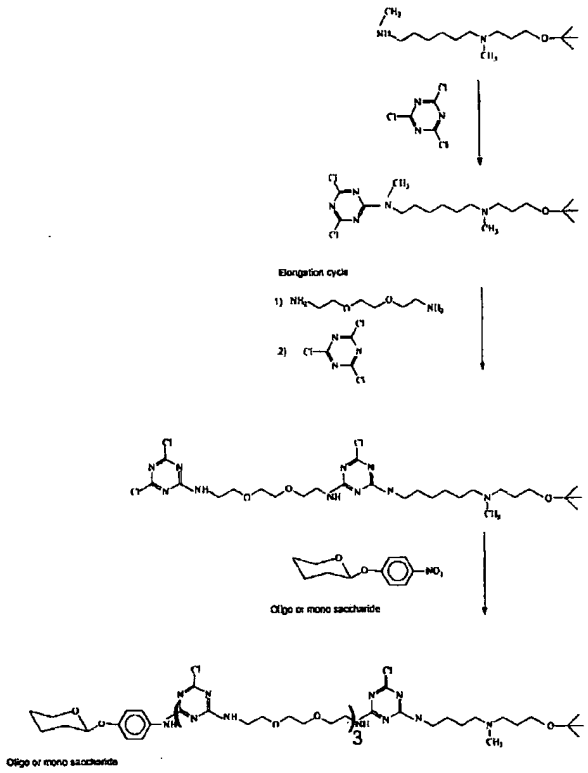
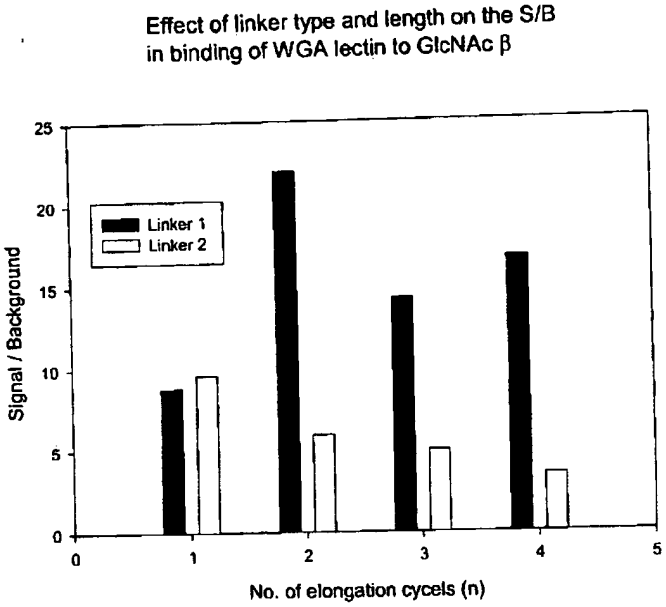
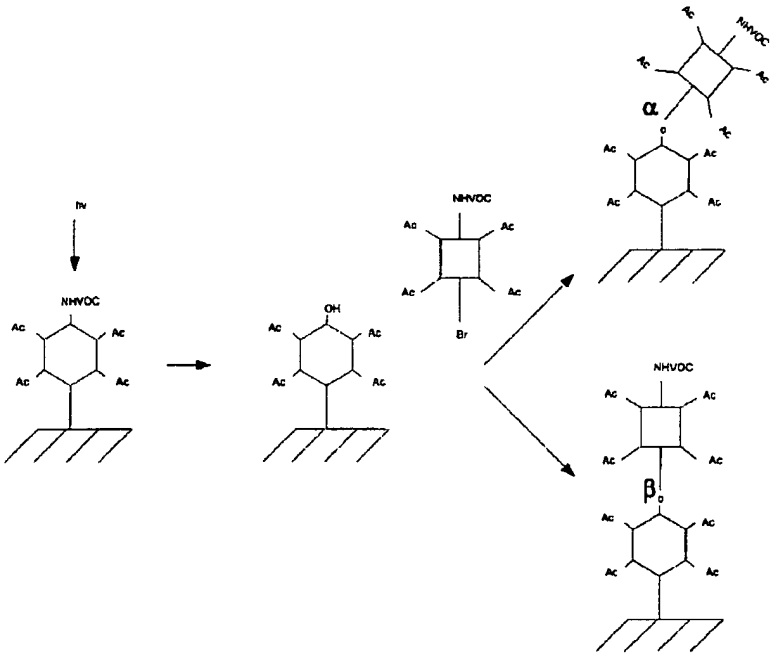

Elongation cycle
Oligo or mono saccharide
Oligo or mono saccharide
3

Figure 5

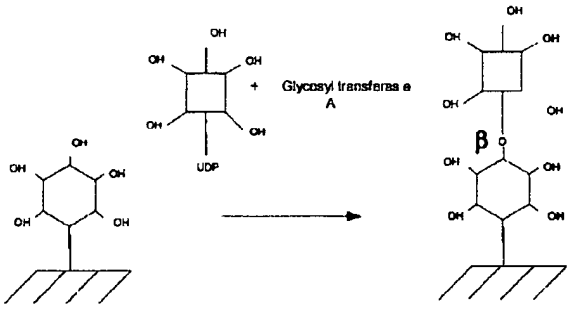

Effect of linker type and length on the S/B
in binding of WGA lectin to GlcNAc β
Linker 1
Linker 2
Signal / Background
No. of elongation cycels (n)
0
5
10
15
20
25
0
1
2
3
4
5

# Appendix 2

Fodor et al . Chemical synthesis
- When synthesising glycosidic bond chemicaly the reaction products will include both beta and alpha anomers to some extant. This anomers can be seperated since thay have to be attache to a solid phase.The final wrry will not be homogenus regarding its stero-specificity.

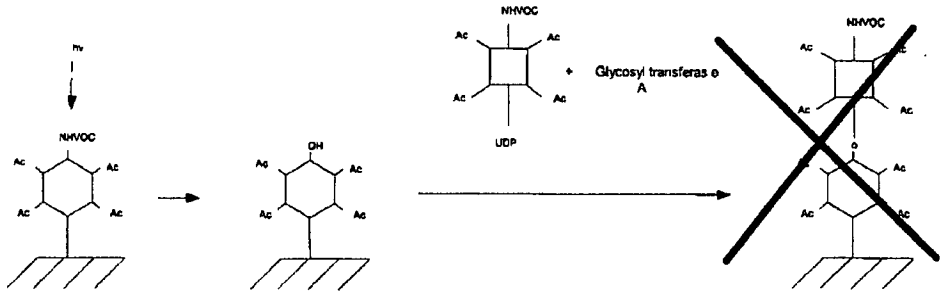



Dukler and Dotan enzymatic synthesis
- A product that is sterospecificaly homogenus

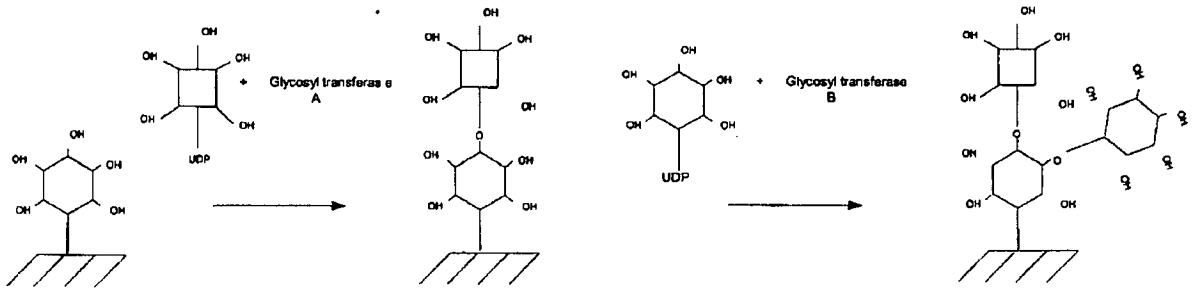



Ac- protection group NHVOC- Light sentative protecting group OH - Natural hydroxyl on carbohydrate

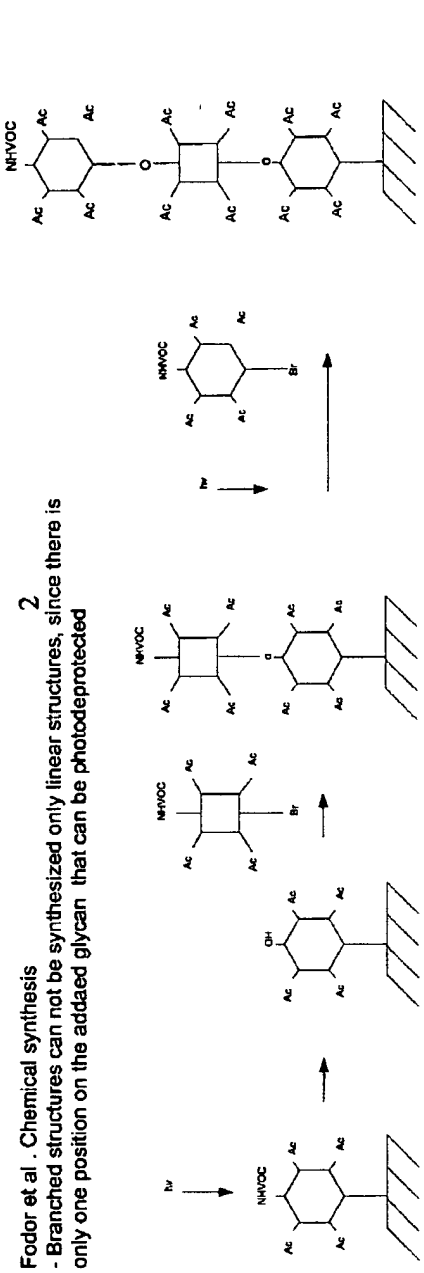
Enzymatic synthesis combined with control of synthesis location using photo deprotection as suggested by Fodor et al .can not be done because of the following:
The glycosyletransferase will not recognise the photoprotected UDP-Sugar donor because it is not its natural substrate . The protected acceptor will not be recognise by the enzyme because it is not its natural substrate.
(There are some exeptions for this :few sialyltransferase can tolrate modification on the 9 position of the CMP-sialyc donor, and it could not used a a general method)

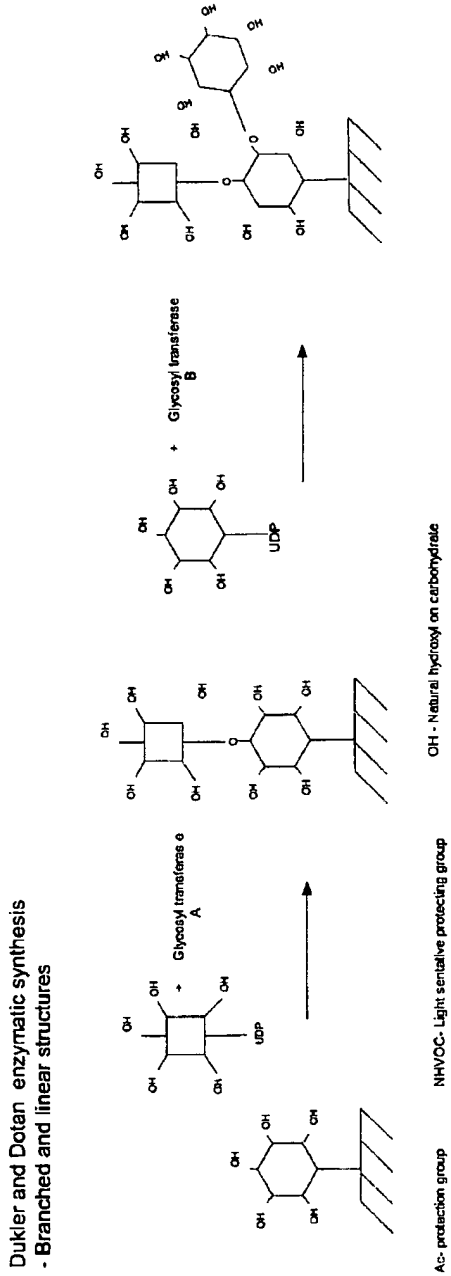



Dukler and Dotan - Enzymatic synthesis of branched and linear structures in physically separated locations on the array

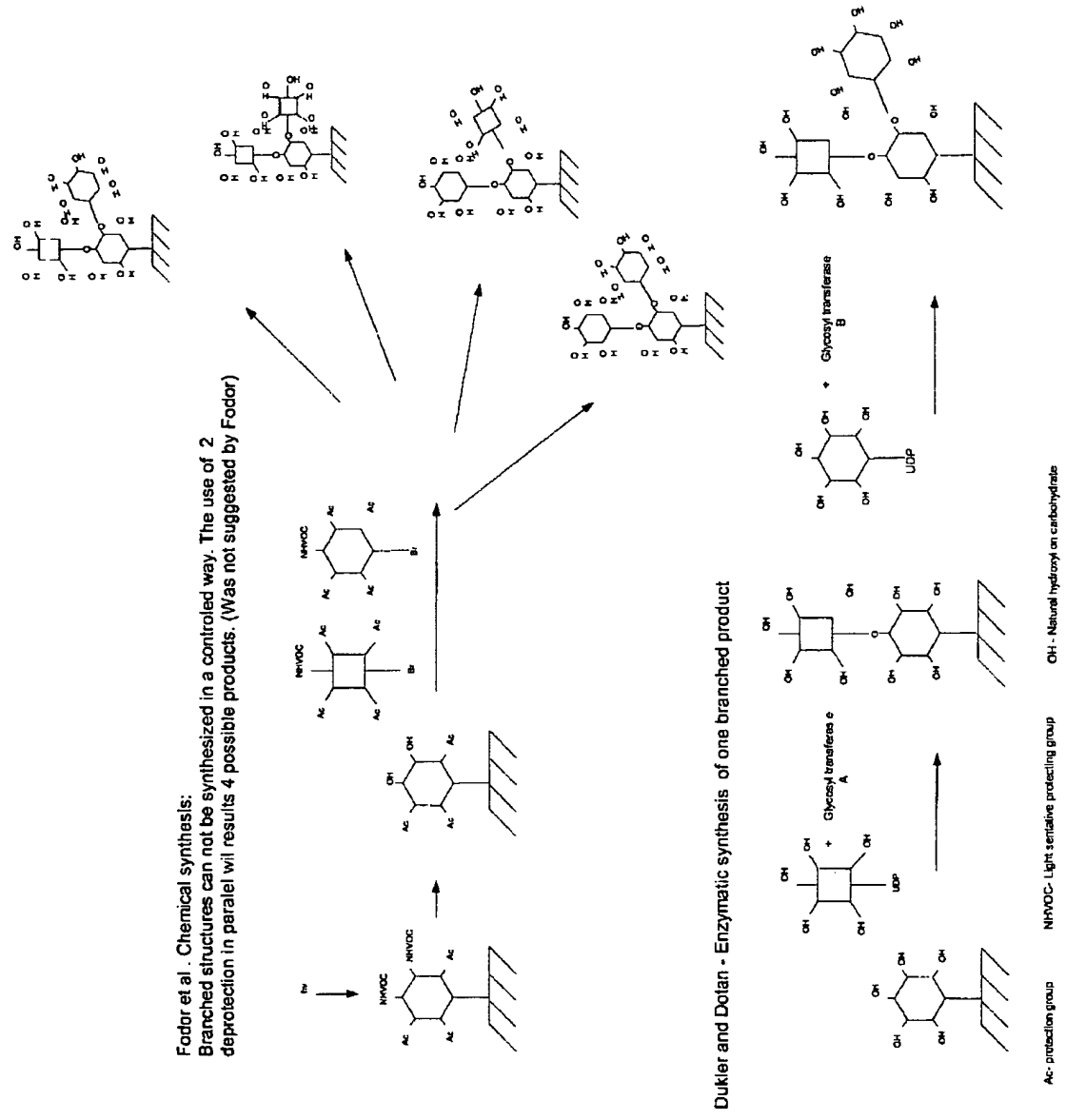



Ac- protection group NHVOC- Light sensitive protecting group OH - Natural hydroxyl on carbohydrate


Fodor et al . Chemical synthesis
- Branched structures can not be synthesized only linear structures, since there is only one position on the addaed glycan that can be photodeprotected
2
hv
NHVOC
Ac
Br
O


Dukler and Dotan enzymatic synthesis
- Branched and linear structures
OH
UDP
Glycosyl transferase A
Glycosyl transferase B
Ac- protection group
NHVOC- Light sensitive protecting group
OH - Natural hydroxyl on carbohydrate

3


Fodor et al . Chemical synthesis:
Branched structures can not be synthesized in a controled way. The use of 2
deprotection in paralel wil results 4 possible products. (Was not suggested by Fodor)
Dukler and Dotan - Enzymatic synthesis of one branched product
Glycosyl transferase A
Glycosyl transferase B
UDP
Ac- protection group
NHVOC- Light sentative protecting group
OH - Natural hydroxyl on carbohydrate